

In The Claims:

1. A process for continuous compression refining of pulp comprising:
 - forming a continuous pulp flow;
 - directing the continuous pulp flow to a refining zone having compressive beating surfaces, said beating surfaces having a differential speed of about -5 m/s to about +12 m/s;
 - refining the continuous pulp flow in the refining zone; and
 - discharging the refined pulp from the refining zone.
2. The process for compression refining of pulp of claim 1, wherein the differential speed of the beating surfaces is about 0 m/s.
3. The process for compression refining of pulp of claim 1, wherein the continuous pulp flow is in the form of a pulp web.
4. The process for compression refining of pulp of claim 1, further comprising the steps of:
 - directing the discharged refined pulp at least one additional refining zone having compressive beating surfaces, said beating surfaces having a differential speed of about -5 m/s to about +12 m/s;
 - refining the discharged refined pulp flow in the refining zone; and
 - discharging the refined pulp from the at least one additional refining zone.
5. The process for compression refining of pulp of claim 1, wherein the refining zone has an effective width and the directing of the continuous pulp flow distributes the pulp evenly over the refining zone effective width.
6. The process for compression refining of pulp of claim 1, wherein the forming of a continuous pulp flow includes discharging pulp directly from a thickener and the directing of the pulp flow delivers the pulp flow directly from the thickener to the refining zone.

7. A compressive pulp beating refiner comprising:
 - a pulp in-feed;
 - a refining zone for receiving the in-fed pulp, having two beating surfaces defined by confronting rolls; and
 - a pulp outlet from the refining zone.
8. The compressive pulp beating refiner of claim 7, wherein said confronting rolls rotate at substantially the same rate.
9. The compressive pulp beating refiner of claim 7, wherein said confronting rotating rolls rotate such that the beating surfaces of the rolls move at substantially the same speed.
10. The compressive pulp beating refiner of claim 7, wherein said confronting rolls rotate such that the beating surfaces of the rolls move at substantially the same speed while the confronting rolls rotate at a different rate.
11. The compressive pulp beating refiner of claim 7, wherein there are pairs of confronting rolls having an extended beating gap.
12. The compressive pulp beating refiner of claim 11, wherein each roll utilizes a shoe-type support to form the extended gap.
13. The compressive pulp beating refiner of claim 11, wherein each roll utilizes a beam-type support to form the extended gap.
14. The compressive pulp beating refiner of claim 7, wherein both of said confronting rolls rotate and have interengagable spikes.
15. The compressive pulp beating refiner of claim 7, wherein both of said confronting rolls rotate and have fluting or grooves.
16. The compressive pulp beating refiner of claim 15, wherein said fluting or grooves extend in circumferential direction.
17. The compressive pulp beating refiner of claim 16, wherein said fluting or grooves angularly traverse a roll axis.

18. The compressive pulp beating refiner of claim 15, wherein said fluting or grooves engage one another.
19. The compressive pulp beating refiner of claim 15, wherein said fluting or grooves is trapezoidal in shape.
20. The compressive pulp beating refiner of claim 15, wherein said fluting or grooves have a base and the base has dewatering recesses.
21. The compressive pulp beating refiner of claim 15, wherein at least one roll surface has a pre-defined roughness.
22. The compressive pulp beating refiner of claim 7, wherein the in-feed includes a web guide feeding the pulp to a point directly in front of the beating zone.
23. The compressive pulp beating refiner of claim 7, wherein the in-feed is operatively connected to a pulp thickener.
24. The compressive pulp beating refiner of claim 7, wherein at least one beating surface is associated with a moving weave.
25. The compressive pulp beating refiner of claim 24, wherein the moving weave is wrapped round at least one roll.
26. The compressive pulp beating refiner of claim 24, wherein the moving weave is guided over deflection rolls and is pressure-loaded against at least one roll.
27. A compressive pulp beating refiner comprising:
 - a pulp in-feed;
 - a refining zone between two relatively moving beating surfaces, said beating surfaces having a differential speed in the range of about - 5m/s to about + 12m/s; and
 - a pulp outlet.